CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC HEALTH
AIR MANAGEMENT SERVICES

PLAN APPROVAL

Approval No: 06050A

Amend Date: March 20, 2015

Plant ID: 01501
Owner: PES
Mailing Address: 3144 Passyunk Ave
Philadelphia, PA 19145

Source: Philadelphia Energy Solutions (PES)
Location: 3144 Passyunk Ave
Philadelphia, PA 19145

Attention: Charles D. Barksdale Jr.
Environmental Manager

Pursuant to the provisions of Title 3 of the Philadelphia Code, the Air Management Code of February 17, 1995, as amended, and after due consideration of an application received under the rules and regulations of the Philadelphia Air Pollution Control Board, the City of Philadelphia, Department of Public Health, Air Management Services (AMS) on March 20, 2015 approved plans for the modification of the air contamination source(s) described below:

- Installation of ReVAP technology on the 433 Hydrofluoric Acid Alkylation Unit (HFAU), including new storage and receiving facility for the ReVAP additive and new cells for the 433 Cooling Tower.
- Increase the maximum daily alkylate throughput capacity of the 433 HFAU from 22,500 barrels per day to 30,000 barrels per day on a rolling 365-day average.
- Improvements to ancillary equipment and the 431 Depropanizer and Deisobutanizer.
- Increase the permitted maximum operating limit of the 433 Isostripper H-1 Heater from 243 MMBTU/hr to 260 MMBTU/hr (no physical modification required).

03/20/2015 – This amends the original Plan Approval No. 06050A issued December 4, 2006. The following are changes or revisions from the original Plan Approval No. 06050.

- **Replace the 0.035 lb/MMBtu NOx limit with a 5.0 lbs/hr NOx during periods of start-ups,shutdowns, chemical washings and dry-outs.**
- **Remove the fuel oil limits for #3 Boiler House with a condition that #3 Boiler House shall only burn refinery gas per Consent Decree dated May 24, 2005, Civil Action No. 05-02866.**

This plan approval expires on September 20, 2016. If modification has not been completed by this date, an application for either an extension or a new plan approval must be made. The conditions in this plan approval will remain in effect until they are incorporated in an operating permit.

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PLAN APPROVAL CONDITIONS
PLAN APPROVAL NO. 06050A
COMPANY: PES

The sources covered by this plan approval are subject to the conditions prescribed in the attachment.Wherever a conflict occurs between this installation permit and operating permit, construction permit, or any local, state, and federal regulations, the Permittee, shall in all cases, meet the more stringent requirement.

3/20/15

Edward Wiener
Chief, Source Registration

PLAN APPROVAL CONDITIONS
PLAN APPROVAL NO. 06050A
COMPANY: PES

1. The HFAU shall be operated in accordance with the specifications in the application (as approved herein).

2. PES shall operate the HFAU in accordance with 40 CFR 60 Subparts A, GGG, 40 CFR 63 Subparts A, CC, PA DEP Title 25 Sections 127.1, 123.13, 123.22, 123.41, 129.55, 129,58, 129.91, and Air Management Regulation II, III and V whichever is more restrictive.

3. This plan approval may be terminated, suspended or revoked and reissued in accordance with 25 PA Code § 127.13a. If AMS or EPA determines that the owner or operator of PES is liable for violations of the New Source Review or Prevention of Significant Deterioration Requirements, PES shall submit an application to amend this plan approval and or any subsequently amended operating permit.

4. Upon notification, PES shall remodel for SO_2 to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) when AMS has cause to believe that the attainment or maintenance of the NAAQS is in jeopardy.

5. The allowable emissions for the H-1 Heater shall not exceed the following limits:

POLLUTANTS	EMISSION LIMITS		
	Concentration	(lbs/MMBTU)	Tons/year
Total PM/PM_{10}		0.00745	8.5
SO_2		0.033	37.6
CO		0.0985	112.2
NO_x		0.035[a]	39.9
VOC		0.0065	7.4

Notes:
a. Compliance with lbs/MMBTU emission limits shall be based on hourly continuous emission monitor data for NO_x and three one-hour stack tests, if required by AMS, for the other pollutants.
During periods of start-up and shutdown, the 0.035 lb/MMBtu NOx limit is replaced with a 5.0 lbs/hr NOx limit. Start up shall be defined as that period of time from initiation of the heater operation until the unit reaches steady state. Shutdown shall be defined as the cessation of the heater operation. Each period shall not exceed 8 hours. Shutdown and startup periods are limited to 40 hours per 12 month rolling period combined.

During periods of chemical washing of the 433 Unit, the 0.035 lb/MMBtu NOx limit is replaced with a 5.0 lbs/hr NOx limit. The total chemical washing and dryout periods shall not exceed 144 hours per rolling 24 month period. The air dry out period time is defined as the time required to operate the Heater at very low firing rates when compressed air or nitrogen is injected into the unit and the temperature increased to evaporate free water in the system. Free water must be removed prior to re-introducing acid into the unit, and is evidenced by no longer finding any water at low point bleeders.

b. Tons per year emission limits are on a rolling 365-day basis. Compliance with these limits shall be based on continuous emission monitor data for NO_x and stack test data (if required) or AP-42 emission factors, daily fuel usage, and fuel BTU content for the other pollutants.
c. Total PM/PM_{10} emission limits include filterable particulate, as measured by Method 5, and condensable particulate, as measured by Method 202.
d. PM, CO, and SO_2 concentration limits assure compliance with 25 PA Code §§ 123.11 & 123.22, AMR II § VII, and AMR VIII § II.

6. PES may not permit the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is either of the following: [25 Pa Code §123.41]

    a. Equal to or greater than 20% for a period or periods aggregating more than three (3) minutes in any one hour.

    b. Equal to or greater than 60% at any time.

7. PES shall not permit at any time the emission into the outdoor atmosphere of any malodorous air contaminants, in such a manner that malodors are detectable outside its boundary. [25 Pa Code §123.31(b)]

8. The HFAU production rate shall be limited to 30,000 barrels per day calculated on a 365-day rolling average basis.

9. The H-1 Heater shall operate with ultra low-NO_x burners and with a heat input limit of 260 MMBTU/hr (24-hour average).

10. The #3 Boiler House shall only burn refinery fuel gas [Consent Decree dated May 24, 2005, Civil Action No. 05-02866.]

11. PES shall meet the requirements of 40 CFR 60 Subpart GGG (references VV) for fugitives associated with the 433 HFAU. For equipment in organic HAP service, PES shall comply with the requirements for fugitives in 40 CFR 63 Subpart CC (references 40 CFR 60 Subpart VV).

12. In accordance with 25 PA Code Section 129.55(d), the purging of VOCs during a unit turnaround shall be performed in a manner as to direct the volatile organic vapors to a fuel gas system, flare, or vapor recovery system until the initial pressure in such equipment reaches 19.7 psia.

13. If at any time AMS has cause to believe that air contaminant emissions from the H-1 Heater may be in excess of the limitations specified in Condition 5, PES shall be required to conduct whatever test are deemed necessary by AMS to determine the actual emission rate(s)

14. The H-1 Heater shall be equipped with NO_x and O_2 continuous emission monitors and recorders at the outlet for compliance determination with the NO_x emission limitation. The continuous monitors must conform to USEPA performance specifications in 25 Pa Code §123.31 and the PA DEP Continuous Source Monitoring Manual (PA CSMM). The Phase II performance testing of each continuous monitor shall occur within 60 days after achieving maximum production rate, but no later than 90 days after re-starting the unit.

15. PES shall record the HFAU production rate daily and on a 365-day rolling average, calculated daily.

16. PES shall record the H-1 Heater operating rate in MMBTU/hr hourly and on a 24-hour average, calculated hourly.

17. PES shall keep records of the dates and duration of each of shutdown and start-up periods to demonstrate compliance with the 40 hours per rolling 12 month period limit.

18. PES shall keep records of the dates and duration of each chemical washing and drying out to demonstrate compliance with the 144 hours per rolling 24-month period.

19. For #3 Boiler House PES keep records of refinery fuel gas usage and refinery fuel gas heating value for each boiler.

20. PES shall submit CEM and production reports to Air Management Services on a quarterly basis. CEM reports must meet the requirements of the PA CSMM.

21. Any notifications required, as a result of any condition herein should be directed to Chief of Source Registration, Air Management Services, 321 University Avenue, Philadelphia, PA 19104.

RE: PES Refinery 433 HFAU - 06050A 2 27 2015 - TO EPA 3 9 2015 (3) EPA Comments

Maryjoy Ulatowski
Sent: Friday, March 20, 2015 9:45 AM
To: wentworth, paul [wentworth.paul@epa.gov]

Paul,

Thank you for your comments and expedite review.

Maryjoy Ulatowski, Environmental Engineering Specialist
Philadelphia Air Management Services - Source Registration
321 University Avenue
Philadelphia, PA 19104
215-685-9475

From: wentworth, paul [wentworth.paul@epa.gov]
Sent: Thursday, March 19, 2015 4:12 PM
To: Maryjoy Ulatowski
Subject: PES Refinery 433 HFAU - 06050A 2 27 2015 - TO EPA 3 9 2015 (3) EPA Comments

I have reviewed the plan approval requesting a change to the 0.035 lb/mmbtu limit to 5.0 lb/hr limits on startup and shut down only. I concur with the issue of the permit. I have one comment related to thie inclusion of the permit terms into the Title V permit. Basically is to insure that all monitoring requirements and emission limits are contained in the title v permit and not incorporated by reference. Please feel free to contact me if you have any questions on this.

Thanks!

Paul T Wentworth, P.E.
Senior Environmental Engineer
EPA Region 3
Air Protection Division
Phone: 215-814-2183
Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom.
Viktor E. Frankl